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ABSTRACT

Although studies document increases in both contraceptive use, and, more recently, in condom use among adolescents, rates of unintended pregnancies remain high and sexually transmitted diseases in adolescents are rising. The data presented here represent the first wave of data obtained in an ongoing longitudinal study of the patterns of drug use among pregnant and parenting adolescents (N=241) ranging in age from 12-17 years (at the time of the initial interview), living in a three county metropolitan area in the Northwest. Fifty-one percent of the sample were White, 33% were African American, and 17% were members of other minority groups (e.g., Latino, Asian American, and American Indian). The study involved interviews with respondents once during pregnancy, and at 1, 6, 12, and 18 months after the birth of the baby. The majority of pregnant adolescents in the sample had a history of substance use. They had comparable or higher lifetime use rates than a national sample of female high school seniors. Over one-third of the sample had experienced sex with a casual partner, and 84 percent had more than one sexual partner. Alcohol use, cigarette use, and use of illicit drugs was related to sexual risk taking at the bivariate level, as has been found in previous research. However, when other variables were entered into the analysis along with substance use variables, the relationship between substance use and sexual risk taking disappeared. The three variables which shared the most variance with the substance abuse variables: years sexually active, race, and delinquency, were entered first in separate regression equations, followed by the substance use variable. The pattern of results was the same for all three. (LLL)

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Drug Use and Sexual Risk Taking in a Sample of High Risk Adolescent Women

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BACKGROUND

In the past two decades, more and more adolescents have become sexually experienced at younger and younger ages. Although studies document increases in both contraceptive use and, more recently, in condom use among adolescents, rates of unintended pregnancies remain high and sexually transmitted diseases in adolescents are rising. Although only about one percent of reported AIDS cases have occurred among adolescents, there is growing concern that adolescents--especially inner city minority youths--are at particularly high risk.

Researchers have begun to suspect that substance use may play a role in adolescent sexual risk taking. Several studies have found positive correlations between substance use and the likelihood of becoming sexually active, between substance use and general sexual involvement, between substance use and age at first intercourse, and between substance use and unintended pregnancies. This prior research has established a link between substance use and sexual behaviors. However, most studies have examined only the bivariate relationship between substance use and sexual behavior, often without controlling for confounds such as the age of the respondent, which may be related to both substance use and whether or not the young women is sexually experienced. Thus, we know little about whether the relationship would hold in a multivariate context.

RESEARCH QUESTIONS

The present analyses were conducted to answer the following questions:

1. What are the risky sexual behaviors in which pregnant adolescents have engaged?
2. Is there a positive relationship between substance use and sexual risk taking in this sample?
3. If so, does the relationship between substance use and sexual risk taking remain after controlling for the length of time the respondent has been sexually active, the respondent's socioeconomic status, and race?
4. Is there a relationship between substance use and sexual risk taking net of other variables hypothesized to be related to sexual risk taking?

THE STUDY

The data presented here represent the first wave of data obtained in an ongoing longitudinal study of the patterns of drug use among pregnant and parenting school-age adolescents. The research is funded by a grant from the National Institute on Drug Abuse. The study involves interviews with respondents once during pregnancy, and at 1, 6, 12, and 18 months after the birth of the baby. Urine samples are collected and analyzed from a randomly selected subsample to verify self-reported substance use.

THE SAMPLE

Unmarried pregnant adolescents, age 17 and younger, living in a three county metropolitan area in the Northwest were recruited from urban public hospital prenatal clinics, public school alternative programs, and social service agencies. Because recruitment procedures included advertising, a conventional overall response rate could not be calculated. In the only agency--a large county hospital prenatal clinic--where recruitment procedures allowed collection of complete approach and consent data, 75% of eligible informed adolescents consented to study participation. Respondents were paid $15 for the first interview; the amount of payment was increased by $5 for each successive interview.

The sample consists of 241 pregnant young women who ranged in age from 12 to 17 ($\underline{M}$ = 16 years) at the time of the initial interview. Fifty-one percent of the sample was White, 33% were African American, and the remaining 17% were members of various other minority groups such as Latino, Asian American, and American Indian. 71% were experiencing their first pregnancy. Respondents had completed on average 9.4 years of school, but 38% had dropped out of school. Thirty-five percent had parents who had received welfare in the preceding year. The sample may be described as at risk in that at the time of enrollment relatively high proportions previously had run away from home (70%), had been suspended or expelled from school one or more times (62%), had been questioned by police (48%), and had been charged with a (nondrug related) crime (30%). The sample represents the "middle ground" of risk status for adolescents (between mainstream, nondelinquent youth still in school and street youth who move in and out of serious involvement in crime and drug abuse).

MEASURES

Dependent Variable

Sexual risk taking is the number of different risky behaviors in which the respondent reported that she had ever engaged including: anal sex, sex in exchange for money, sex in exchange for drugs, more than one sexual partner, and whether the respondent had ever had sex with a "casual" partner; i.e., someone the respondent hardly knew. Each item was scored either "0", never engaged in the behavior, or "1" ever engaged in the behavior. Responses were then summed to form a scale ranging from 0 to 5 (no sexual risk taking to engaging in 5 different types of risky sexual behaviors).

Predictor Variables

Proportion of friends ever pregnant is the proportion of close friends who have ever been pregnant. Scores thus range from 0 (none) to 1.0 (all).

Religiosity is the frequency of attending religious services in the past year and ranges from 1 (never) to 6 (once a week or more).

Self-esteem is measured using Rosenberg's Self-Esteem Scale. Respondents responded to 10 items on a 4-point scale. Responses were averaged to form the scale. Higher scores indicate higher self-esteem.

Educational aspirations are measured by an item asking how much education the respondent plans to obtain. Responses range from 1 (less than high school) to 5 (college graduate).

Delinquent Behaviors is a 12 item scale which measured the number of different delinquent behaviors in which the respondent reported that she had ever engaged (e.g., shoplifting, vandalism, selling drugs). The scale ranges from 0 (never engaged in delinquent behaviors) to 12 (engaged in 12 different types of delinquent behaviors).

Cigarette use is measured on an ordered scale where 0 = never smoked, 1 = used to smoke, but quit, 2 = currently smoke occasionally, 3 = currently smoke regularly.

Alcohol use is measured on an ordered scale where 0 = never used alcohol, 1 = have had just a sip or two, 2 = occasional, but not regular, use currently, 4 = currently use alcohol regularly.

Illicit drug use is a dichotomous variable scored 0 (no use of illicit drugs) or 1 (use of any illicit drugs). The illicit drugs included marijuana, cocaine, amphetamines, barbiturates, tranquilizers, psychedelics, inhalants, heroin or opium, and any other narcotics.

Control Variables

Years sexually active is the difference between the respondent's age at the first interview and the age at first (voluntary) intercourse.

Socioeconomic status is the respondent's mother's educational level. The scale ranges from 1 (less than 7th grade) to 7 (graduate or professional school).

Race is a dichotomous variable coded 0 (white) and 1 (women of color).

RESULTS

Table 1 compares respondents' lifetime use of substances with national data from the Monitoring the Future Study. Respondents reported comparable or higher lifetime use rates for all substances. Given that they are, on average, younger than the respondents in the national study, these findings suggest an even greater difference in use rates than that apparent in the table.

Table 2 reports the lifetime prevalence of engaging in risk taking behaviors. The vast majority of respondents reported more than one sexual partner in the past. Over 1/3 report having had sex with a casual partner and almost 10% have engaged in anal sex. Just over 8% have exchanged sex for money or drugs. When asked about their lifetime use of birth control, close to two-thirds indicated that they had used contraceptives less than half the time. A small proportion (12%) have had sex with IV drug users. Given the young age of the sample, these data suggest considerable sexual risk taking. In addition, most of the respondents had at some time run away from home, many had been suspended or expelled from school at some time, and a not insignificant minority had engaged in illegal behaviors.

Table 3 presents the means, standard deviations, and bivariate correlations between all variables included in the analysis. Notable is the fact that sexual risk taking was virtually uncorrelated with the proportion of friends who have ever been pregnant, self-esteem, educational aspirations, and mother's educational level. These variables were thus dropped from further analyses.

Table 4 presents the results of a hierarchical regression analysis in which the control variables were entered in the first step, all predictor variables except the substance use variables were entered next, and the substance use variables were entered last.

CONCLUSIONS

1. The majority of pregnant adolescents in our sample had a history of substance use. They had comparable or higher lifetime use rates than a national sample of female high school seniors. Particularly high rates were noted for marijuana, cocaine, and hallucinogens.

2. Over one third of the sample have had sex with a casual partner, and 84% have had more than one sexual partner. Although other sexual risk taking behaviors were engaged in by less than 10% of the sample, given the relatively young age of the sample (mean age = 16), they may be at high risk for sexually transmitted diseases and repeat pregnancies. Respondents had also engaged in relatively high rates of other problem behaviors including running away from home, dropping out of school, school expulsions or suspensions, and involvement in crime.

3. Alcohol use, cigarette use, and use of illicit drugs was related to sexual risk taking at the bivariate level, as has been found in previous research. However, when other variables were entered into the analysis along with the substance use variables, the relationship between substance use and sexual risk taking disappeared. This suggests that the effect of substance use on sexual risk taking may be indirect, or possibly that the bivariate relationship is spurious. These possibilities were explored in further regression analyses.

The three variables which shared the most variance with the substance use variables--years sexually active, race, and delinquency--were entered first in separate regression equations, followed by the substance use variable. The pattern of results was the same for all three. Cigarette and alcohol use retained their relationship with sexual behavior net of years sexually active, or race, or delinquency. Only the relationship between illicit drug use and risky sex dropped to non-significance when one of these

variables was entered first. However, when all three variables--years sexually active, race, and delinquency--were entered simultaneously in the first step, followed by the substance use variable, none of the substance use variables retained its association with sexual risk taking.

In this sample of pregnant adolescents, as well as in previous studies, there was a positive association between sexual risk taking and substance use. In view of the fact that this association disappeared when other variables were taken into account, future research should attempt to elucidate the causal paths through which substance use affects sexual behavior. When this is accomplished, we will have a much better sense of what intervention strategies are most likely to reduce sexual risk taking in this population.

Table 1

Lifetime Prevalence of Substance Use (% ever used): Pregnant Sample vs. National Sample

	Pregnant Sample	High School Seniors[a] Class of 1987 Females
Alcohol	93.8	92.2
Marijuana	78.0	48.0
Cocaine	30.3	13.6
Inhalants	17.0	14.2
Stimulant	29.5	22.9
Sedatives	7.1[b]	8.0
Barbiturates	--	6.7
Tranquilizers	7.5	11.0
Hallucinogens	32.0[c]	8.9
LSD	--	6.8
PCP	--	2.3

[a]From Johnston, L.O., O'Malley, P.M., & Bachman, J.G. (1988). Illicit Drug Use, Smoking, and Drinking by America's High School Students, College Students, and Young Adults (p. 36). Washington, D.C.: U.S. Government Printing Office.

[b]Combines sedatives and barbiturates

[c]Combines hallucinogens, LSD, PCP, and other psychedelics

Table 2

Lifetime Prevalence of Risk Taking Behaviors

Other than Substance Use

Behavior	Percent
More than one sexual partner	84
Received money for sex	5
Received drugs for sex	3
Engaged in casual sex	35
Have had anal sex	10
Have had STD	39
Birth control 1st intercourse	32
Use birth control <half time	60
Prior unintended pregnancies	29
Sexual partner needle user	12
School drop out	38
Suspended/expelled from school	62
Run away from home prior to pg.	70
Charged with crime	30
Served time in jail/detention	24
Sold drugs	16

Note: Figures are percent ever engaging in the behavior

Table 3

Means, Standard Deviations, and Correlations among Variables (N = 199)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Risk. Sx.	---	.02	.42	-.11	-.05	-.02	.22	.33	.15	-.00	.53	-.17
2. Frnd Pg.		---	.04	-.03	.10	.06	-.01	.08	.12	.08	-.03	.02
3. Delinq			---	-.11	-.05	-.10	.28	.43	.26	-.05	.27	-.07
4. Esteem				---	.23	.16	-.25	-.18	-.34	.15	.01	.12
5. Ed. Asp.					---	.19	-.32	-.15	-.18	.23	-.07	.17
6. Relig.						---	-.15	-.06	-.17	.15	-.12	.28
7. Cigs							---	.39	.33	-.10	.25	-.36
8. Alc								---	.47	-.05	.24	-.36
9. Ill. Drg.									---	-.03	.13	-.23
10. SES										---	.03	-.04
11. Yrs. Rsk.											---	-.14
12. Race												---
Mean	1.36	0.85	2.87	3.27	3.47	3.07	1.48	3.02	0.83	4.15	2.08	0.47
S.D.	0.97	0.70	2.51	0.52	1.10	1.79	1.07	0.77	0.37	1.28	1.52	0.50

Note: Risk Sx. = sexual risk taking; Frnd. Pg. = friends pregnant; Delinq = delinquent behaviors; Esteem = self-esteem; Ed. Asp. = educational aspirations; Relig = religiosity; Cigs = cigarette use; Alc = alcohol use; Ill. Drg. = illicit drug use; SES = socioeconomic status; Yrs. Rsk. = Years sexually active.

$p \leq .05$ for $r \geq .14$.

Table 4

Results of Hierarchical Regression Analysis of Risky Sex

Variable	Standardized Regression Coefficients		
	Step 1	Step 2	Step 3
Race	.11[a]	.10[a]	.09
Yrs Rsk	.51***	.42***	.41***
Esteem		-.04	-.05
Delinq		.34***	.32***
Alc			.10
Cigs			-.00
Ill. Drg.			-.08
Adjusted R^2	.28	.39	.39
R^2 Change		.11***	.01

[a]p<.10
*p<.05
**p<.01
***p<.001